

**REMARKS**

The change in Examiner is noted.

Independent claim 17 has been amended to better define the claimed invention and better distinguish the claimed invention from the prior art. More particularly, claim 17 has been amended to specify that the starting reduced (rho-) iso- $\alpha$ -acids comprise a mixture of the reduced (rho-) iso- $\alpha$ -acids in their acidic resinous form and that the resulting product is a concentrated, single phase aqueous solution containing a mixture of alkali metal salts of said reduced (rho-) iso-alpha acids. This clearly distinguishes independent claim 17 from Maye who, as the Examiner notes in the Examiner's Answer mailed December 23, 2004, teaches heating aqueous alkaline solutions, with stirring. A "solution" is "a conversion of a solid or gas into a liquid by mixture with a liquid". (See the Oxford Dictionary of Current English, p. 869 - Exhibit A). As noted in Applicants' specification, Applicants are dealing with a mixture of reduced (rho-) iso- $\alpha$ -acids in their acidic resinous form, which Applicants heat to fluid state. Stated another way, Applicants' claimed invention creates a melt of the  $\alpha$ -acids in their acidic resinous form, while the prior art dissolves the  $\alpha$ -acids in an aqueous carrier.

On page 2 of the Action, the Examiner quotes Maye (in US Patent 5,583,262, Col. 3, lines 54-59) as teaching "*the step of heating prior to the addition of the alkali metal hydroxide solution and further discloses that such a process can salt precipitate better than 70% of the hop bittering compounds*". Applicants respectfully point out that a) Maye is heating a dilute solution of the hop bittering compounds that is already in an alkaline condition and b) does not teach the addition of aqueous alkaline metal hydroxide but discloses instead the addition of a salt that generates (via salt precipitation) the production of two phases. Applicants' claimed

process is clearly distinguished, since Applicants claim heating of reduced (rho-) iso- $\alpha$ -acids in their acidic resinous form, followed by addition of concentrated, aqueous alkali metal hydroxide solution and the consequent formation of a *single* phase, highly concentrated aqueous solution of the alkali metal salts of reduced (rho-) iso- $\alpha$ -acids. Nowhere in their claimed process do the Applicants employ salt, or the process of salting out, or the formation of two phases!

Previously the Examiner took the position that Maye at Col. 5, lines 16-31 and Examples 5-8 teaches Applicants' process, seemingly on the grounds that Maye teaches basification with potassium hydroxide and the heating and the stirring of aqueous alkaline solutions. While the steps per se of heating, stirring and basification with potassium hydroxide may be known in the art, they have not hereto been practiced in accordance with the process sequence and conditions required by Applicants claims! Maye first produces a solution of reduced (rho-) iso- $\alpha$ -acids, then adds salt, to form two phases, separates the two phases so-formed, taking the "oil" phase and drying it. Applicants process starts with a mixture of reduced (rho-) iso- $\alpha$ -acids in their acidic resinous form, heats the mixture to fluid state, and adds aqueous alkali metal hydroxide solution to the heated mixture of iso- $\alpha$ -acids to form a concentrated, single phase aqueous solution containing a mixture of alkali metal salts of said reduced (rho-) iso- $\alpha$ -acids. Compare that to Maye who explains, at Col. 3 lines 47-54: "*In present practice, hop acids such as alpha acids, beta acids, isoalpha acids, reduced isoalpha acids and the like have been converted into their potassium salt and sold as an aqueous alkaline solution of that salt. Physical stability problems are generally associated with the way these products are formulated. Some of these hop products can precipitate out of solution over time, making these products cumbersome to work with.*" This point also is specifically

highlighted by Shahlai et al in US Patent 6,583,322, Col. 1, lines 51-54, wherein it is observed that "DHIA [i.e. reduced (rho-) iso- $\alpha$ -acids, see Col. 1, lines 14-17] is sold as a 35% solution of its potassium salt in water at a pH of about 10.5 and above, from which large, insoluble crystals of DHIA will precipitate over time".

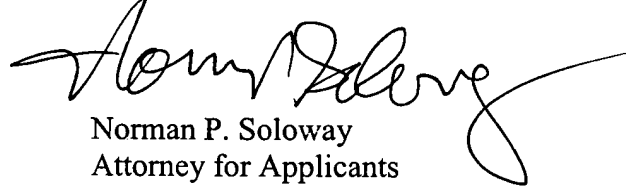
Thus, independent claim 17 is both novel and unobvious.

Claims 18 and 20-22 are directly or indirectly dependant on claim 17 and are allowable for the same reasons above adduced relative to claim 17, as well as for their own additional limitations. A new claim 28 has been added to further scope the invention and finds fort, for example, in the paragraph beginning at the middle of page 8 of the original specification, is similarly allowable over the art.

Having dealt with all of the objections raised by the Examiner, the application is believed to be noted for allowance.

In the event there are any fee deficiencies or additional fees are payable, please charge them (or credit any overpayment) to our Deposit Account Number 08-1391.

Respectfully submitted,



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anxious. □ solicitously *adv.* [Latin: related to SOLICIT]

**solicitude** *n.* being solicitous. [Latin: related to SOLICITOUS]

**solid** /'sɒlɪd/ *-adj.* (-der, -dest) 1 firm and stable in shape; not liquid or fluid. 2 of such material throughout, not hollow. 3 of the same substance throughout (*solid silver*). 4 sturdily built; not flimsy or slender. 5 a three-dimensional. **b** of solids (*solid geometry*). 6 a sound, reliable (*solid arguments*). **b** dependable (*solid friend*). 7 sound but unexciting (*solid piece of work*). 8 financially sound. 9 uninterrupted (*four solid hours*). 10 unanimous, undivided. 11 (of printing) without spaces. *-n.* 1 solid substance or body. 2 (in *pl.*) solid food. 3 *Geom.* three-dimensional body or magnitude. *-adv.* solidly (*jammed solid*). □ **solidity** *adv.* solidness *n.* [Latin *solidus*]

**solidarity** /sɒlɪ'dærɪti/ *n.* 1 unity, esp. political or in an industrial dispute. 2 mutual dependence. [French: related to SOLID]

**solidify** /sə'lɪdɪfaɪ/ *v.* (-ies, -ied) make or become solid. □ **solidification** /-fɪ'keɪʃ(ə)n/ *n.*

**solidity** /sə'lɪdɪti/ *n.* being solid; firmness.

**solid-state** *adj.* using the electronic properties of solids (e.g. a semiconductor) to replace those of valves.

**solidus** /'sɒlɪdəs/ *n.* (*pl.* *solidi* /-daɪ/) oblique stroke (/). [Latin: related to SOLID]

**soliloquy** /sə'lɪləkwɪ/ *n.* (*pl.* *-quies*) 1 talking without or regardless of hearers, esp. in a play. 2 this part of a play. □ **soliloquist** *n.* **soliloquize** *v.* (also *-ise*) (-zing or -sing). [Latin *solus* alone, *loquor* speak]

**solipsism** /'sɒlɪp,sɪz(ə)m/ *n.* philosophical theory that the self is all that exists or can be known. □ **solipsist** *n.* [Latin *solus* alone, *ipse* self]

**solitaire** /sɒlɪ'teə(r)/ *n.* 1 jewel set by itself. 2 ring etc. with this. 3 game for one player in which pegs etc. are removed from a board by jumping others over them. 4 US = PATIENCE 3. [French: see SOLITARY]

**solitary** /'sɒlɪtəri/ *-adj.* 1 living or being alone; not gregarious: lonely. 2 secluded. 3 single, sole. *-n.* (*pl.* *-ies*) 1 recluse. 2 *colloq.* = SOLITARY CONFINEMENT. □ **solitariness** *n.* [Latin *solitarius* from *solus* alone]

**solitary confinement** *n.* isolation in a separate prison cell.

**solitude** /'sɒlɪ,tjuːd/ *n.* 1 being solitary. 2 lonely place. [Latin *solitudo*: related to SOLITARY]

**solo** /'səʊləʊ/ *-n.* (*pl.* *-s*) 1 (*pl.* *-s* or *soli* /-li/) musical piece or passage, or a dance, performed by one person. 2 thing done by one person, esp. an unaccompanied flight. 3 (in full solo whist) type of whist in which one player may oppose the others. *-v.* (-es, -ed) perform a solo. *-adv.* unaccompanied, alone. [Italian from Latin: related to SOLE<sup>3</sup>]

**soloist** /'səʊləʊɪst/ *n.* performer of a solo, esp. in music.

**Solomon's seal** *n.* flowering plant with drooping green and white flowers. [Solomon, king of Israel]

**solstice** /'sɒlstɪs/ *n.* either of the times when the sun is furthest from the equator. [Latin *solstitium* 'the sun standing still']

**soluble** /'sɒljʊb(ə)/ *adj.* 1 that can be dissolved, esp. in water. 2 solvable. □ **solubility** /-bɪlɪti/ *n.* [Latin *solvo* *solut-* release]

**solute** /'sɒljʊ:t/ *n.* dissolved substance.

**solution** /sə'luːʃ(ə)n/ *n.* 1 solving or means of solving a problem. 2 a conversion of a solid or gas into a liquid by mixture with a liquid. **b** state resulting from this. 3 dissolving or being dissolved.

**solve** *v.* (-ving) answer, remove, or effectively deal with (a problem). □ **solvable** *adj.*

**solvent** *-adj.* 1 able to pay one's debts; not in debt. 2 able to dissolve or form a solution with something. *-n.* solvent liquid etc. □ **solvency** *n.* (in sense 2 of *adj.*)

**somatic** /sə'mætɪk/ *adj.* of the body, not of the mind. □ **somatically** *adv.* [Greek *sōma* *-mat-* body]

**sombre** /'sɒmbə(r)/ *adj.* (also US *somber*) dark, gloomy, dismal. □ **sombrely** *adv.* **sombreness** *n.* [Latin *sub umbra* under shade]

**sombrero** /sɒm'briə(r)/ *n.* (*pl.* *-s*) broad-brimmed hat worn esp. in Latin America. [Spanish: related to SOMBRE]

**some** /səm/ *-adj.* 1 unspecified amount or number of (*some water; some apples; some of them*). 2 unknown or unspecified (*some day; some fool broke it*). 3 approximately (*some ten days*). 4 considerable (*went to some trouble; at some cost*). 5 (usu. stressed) **a** at least a modicum of (*have some consideration*). **b** such up to a point (*that is some help*). **c** *colloq.* remarkable (*I call that some story*). *-pron.* some people or things, some number or amount (*I have some already*). *-adv. colloq.* to some extent (*do it some more*). [Old English]

**-some<sup>1</sup>** *suffix* forming adjectives meaning: 1 producing (*fearsome*). 2 characterized by being (*gladsome*). 3 apt to



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